

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for the 6 position keystone modular jack and the 8 position keystone modular jack. These assemblies are designed for panel mounting and provide a means of terminating discrete wires to standard telephone jacks that accept standard telephone line cord plugs. The insulation displacing terminals are designed to terminate 19-28 AWG solid or stranded copper wire having a maximum overall diameter of .065.

1.2. Qualification

When tests are performed on the subject product line, the procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. AMP Documents


- A. 109-1: General Requirements for Test Specifications
- B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
- C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents
- D. 501-82 : Test Report

2.2. Commercial Standards

- A. F.C.C.: Rules for Registration of Telephone Equipment, Part 68, Subpart F, Connectors
- B. REA Bulletin 345-81, PE-76: Specification for Modular Telephone Set Hardware

* Trademark of AMP Incorporated

COPYRIGHT 1984 BY AMP INCORPORATED ALL INTERNATIONAL RIGHTS RESERVED

				DR F.Rinehardt 6/10/86	 AMP INCORPORATED Harrisburg, Pa. 17105		
				CHK G.Reed 6/13/86			
				APP J.Wilkerson 6/13/86		NO 108-6053	REV A
A	Revise per ECN AA-5415	<i>PK</i>	<i>12/1/88</i>	PAGE 1 OF 8	TITLE MODULAR JACK, KEYSTONE 6 POSITION AND 8 POSITION		
LTR	REVISION RECORD	APP	DATE				

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2. Materials

- A. Contact: Phosphor bronze, nickel plated with selective gold plating on contact area.
- B. AMP-BARREL* terminal: Phosphor bronze, tin plated
- C. Housing: Polyphenylene oxide
- D. Keystone array: Polyester, 15% fiberglass reinforced
- E. Stuffer cap: Polycarbonate

3.3. Ratings

- A. Voltage: 150 vac maximum
- B. Operating Temperature: -40° to 60°C

3.4. Performance and Test Description


The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are performed at ambient temperature unless otherwise specified.


3.5. Test Requirements and Procedures Summary

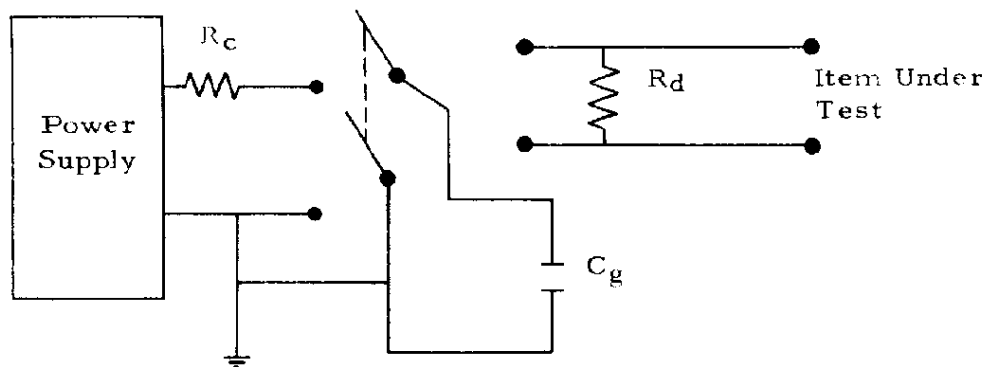
Test Description	Requirement	Procedure
Examination of Product	Meets requirements of product drawing.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination Resistance, Dry Circuit	Used to determine ΔR in subsequent tests.	Subject modular jack mated with modular plug to 50 mv open circuit at 100 ma maximum, see Figure 5; AMP Spec 109-6-1.
Dielectric Withstanding Voltage	1000 vac (rms) dielectric withstanding voltage, one minute hold.	Test between adjacent conductors of the following assembly combinations to the specified voltage 1. Modular jack alone 2. Modular jack mated with a modular plug and mounted; AMP Spec 109-29-1.

Figure 1 (cont)

AMP	AMP INCORPORATED Harrisburg, Pa. 17105	PAGE	NO	REV	LOC
		2	108-6053	A	B

Test Description	Requirement	Procedure								
Insulation Resistance	500 megohms minimum.	Test between adjacent circuits of unmated modular jacks; AMP Spec 109-28-3.								
Surge Test	500 megohms minimum insulation resistance.	Subject modular jack mated with modular plug to surge test; see Figure 2.								
MECHANICAL										
Vibration Sinusoidal Low Frequency	No discontinuities greater than 1 microsecond.	Subject mated plug and jack to 10-55-10 Hz traversed in 1 minute at 0.06 inches total excursion; 2 hours in each of 3 mutually perpendicular planes; AMP Spec 109-21-1.								
Mating Force	5 pounds maximum	Measure force necessary to mate plug and jack with plug latch depressed at a rate of .5 inch/minute; AMP Spec 109-42, cond A.								
Unmating force	5 pounds maximum	Measure force necessary to unmate plug and jack with plug latch depressed at a rate of .5 inch/minute; AMP Spec 109-42, cond A.								
Plug Retention	Plug shall not dislodge from jack assembly and shall maintain electrical continuity.	Apply axial load of 20 pounds maximum to modular jack mated with the modular plug at a rate of 2 inches/minute; see Figure 6.								
Durability	$\Delta R = 50$ milliohms, termination resistance, dry circuit.	Mate and unmate modular jack and plug for 500 cycles, at a rate of 20 cycles per minute; AMP Spec 109-27.								
Retention Force AMP-BARREL Terminal	11 pounds minimum force to remove AMP-BARREL terminal.	Apply a perpendicular load of 11 pounds, at a rate of 1 inch/minute, to the AMP-BARREL terminal; see Figure 3.								
Contact Force	100 grams minimum.	Apply force as indicated in Figure 3								
Figure 1 (cont)										
 AMP INCORPORATED Harrisburg, Pa. 17105		<table border="1"> <tr> <td>PAGE</td> <td>NO</td> <td>REV</td> <td>LOC</td> </tr> <tr> <td>3</td> <td>108-6053</td> <td>A</td> <td>B</td> </tr> </table>	PAGE	NO	REV	LOC	3	108-6053	A	B
PAGE	NO	REV	LOC							
3	108-6053	A	B							

Test Description	Requirement	Procedure		
Life	$\Delta R = 50$ milliohms termination resistance, dry circuit.	Subject mated modular jack and plug to humidity-temperature cycling followed by 200 mating and unmating cycles.		
ENVIRONMENTAL				
High Humidity-Temperature Cycling	500 vac dielectric withstanding voltage during final cycle, 5 second hold. insulation resistance within 30 minutes after final cycle.	Subject mated plug and jack to 10 humidity-temperature cycles between 4° and 60°C at 95% RH; AMP Spec 109-76-2		
Figure 1 (end)				
 AMP INCORPORATED Harrisburg, Pa. 17105	PAGE	NO	REV	LOC
	4	108-6053	A	B



Surge Test:

The plugs and jacks shall be tested by connecting terminals to a surge generator equivalent to that shown in Figure 2. Circuit constants shall be so proportioned that a surge, having a wave shape of approximately 10×10^3 microseconds with a crest amplitude of 1000 volts, is produced across the wave forming resistor R_d . The value of R_d shall be chosen to ensure the proper wave shape. Plugs and jacks shall be subjected to 5 surges of each polarity at one minute intervals.

Notes:

- (a) Select values of C_g and R_d to produce 10×10^3 microsecond wave shape across R_d with the test item disconnected from the circuit.
- (b) Charge capacitor bank C_g through current limiting resistor R_c to 1000 volts and connect the test item into the circuit in the off-hook condition.
- (c) Discharge C_g thru forming circuit and test item monitoring wave shape and action on oscilloscope.

Figure 2
Surge Test Diagram

AMP AMP INCORPORATED Harrisburg, Pa. 17105	PAGE	NO	REV	LOC
	5	108-6053	A	B

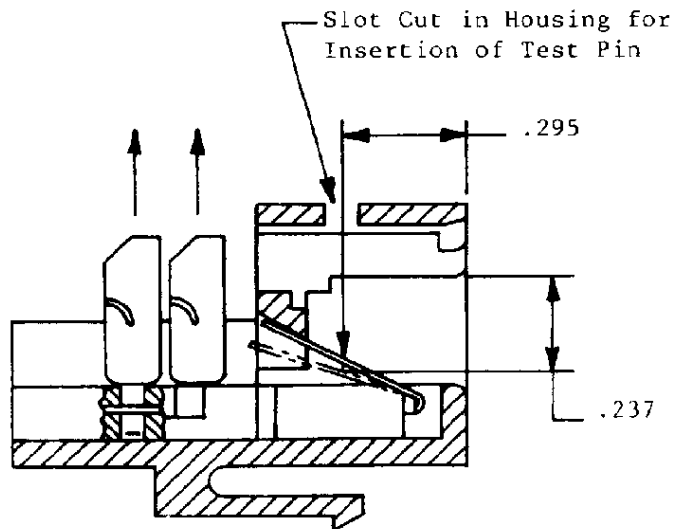


Figure 3
Terminal Retention and Contact Force

3.6. Connector Qualification and Requalification Tests and Sequences

Test or Examination	Test Group (a)						
	1	2	3	4	5	6	7
	Test Sequence (b)						
Examination of Product	1	1	1	1	1	1	1
Termination Resistance, Dry Circuit		2,4	2,4	4,6			2
Dielectric Withstanding Voltage	2						4,6
Insulation Resistance						2,4	3,7
Surge Test						3	
Vibration			3				
Mating Force				2			
Unmating Force				3			
Plug Retention					2		
Retention Force, AMP-BARREL					3		
Contact Force	3						
Durability				5			
Life		3					
Humidity-Temperature Cycling							5

(a) See Para 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

Figure 4

AMP AMP INCORPORATED Harrisburg, Pa. 17105	PAGE	NO	REV	LOC
	6	108-6053	A	B

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Modular plug and jack test samples shall be selected at random from current production lots. They shall be prepared for testing in accordance with current Instruction Sheets. Each test group shall consist of 10 modular jack assemblies mated with modular plugs.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 4.

4.2. Retention of Qualification

If, in a three-year period, no changes to the product or process occur, the product shall be subjected to test groups 4 and 7 of the testing described in the test sequence, see Figure 4. Justification for exceeding this time limit must be documented and approved by the division manager.

4.3. Requalification Testing

If changes significantly affecting form, fit, or function are made to the product or to the manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality, and reliability engineering.

4.4. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.5. Quality Conformance Inspection

The applicable AMP quality inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification

AMP

AMP INCORPORATED
Harrisburg, Pa. 17105

PAGE NO

7

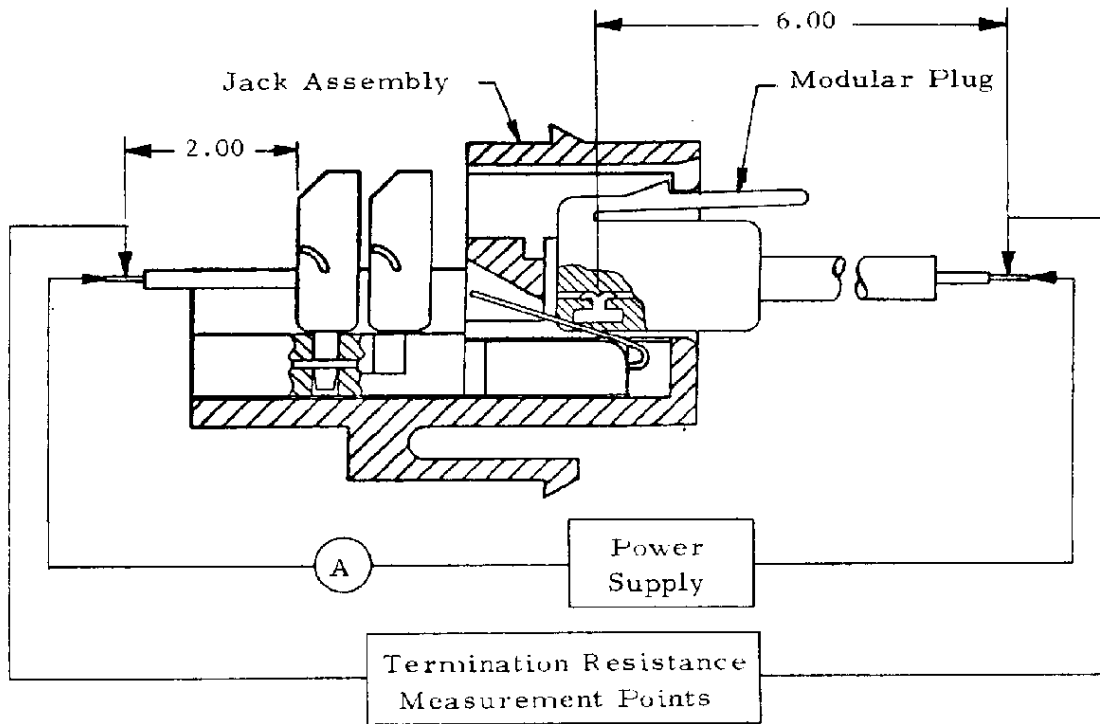
108-6053

REV

A

LOC

B



Note: Millivolt drop (resistance) due to the 6 inch and 2 inch wire lengths shall be subtracted from all readings.

Figure 5
Termination Resistance Measurement Points

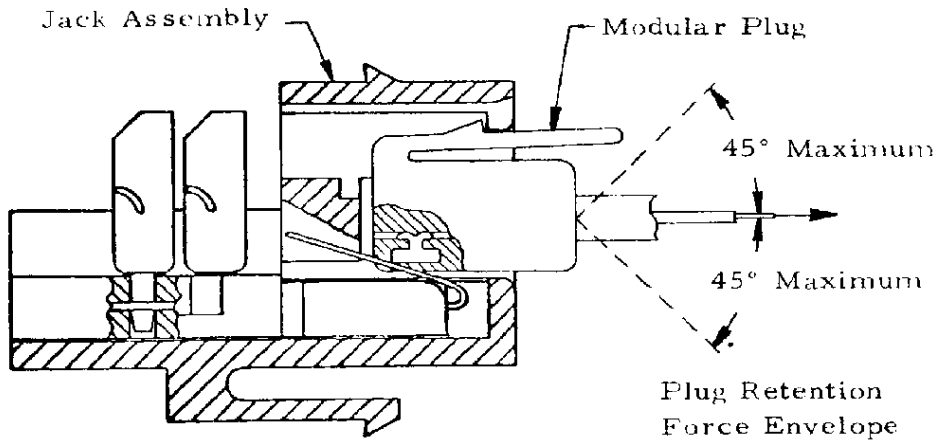


Figure 6
Plug Retention Force

AMP AMP INCORPORATED Harrisburg, Pa. 17105	PAGE	NO	REV	LOC
	8	108-6053	A	B